



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,915	07/31/2003	Gunter Kuechler	010408.52444US	7568
23911 7590 11/26/2008 CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300				
EXAMINER				
WONG, EDNA				
ART UNIT		PAPER NUMBER		
1795				
MAIL DATE		DELIVERY MODE		
11/26/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

10/630,915

Applicant(s)

KUECHLER, GUNTER

Examiner

EDNA WONG

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 12, 14, 16, 17, 31 and 32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 12, 14, 16, 17, 31 and 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

This is in response to the Amendment After Final dated November 20, 2008. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

The finality of the rejection of the last Office action is withdrawn in view of the new grounds of rejection.

Response to Arguments

Claim Rejections - 35 USC § 103

I. Claims **1, 17 and 31-32** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Webb et al.** (US Patent No. 3,422,213).

The rejection of claims 1, 17 and 31-32 under 35 U.S.C. 103(a) as obvious over Webb et al. has been withdrawn in view of Applicants' remarks.

II. Claim **12, 14 and 16** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Webb et al.** (US Patent No. 3,422,213) as applied to claims 1, 17 and 31-32 above, and further in view of **Pollard** (US Patent No. 6,034,322).

The rejection of claims 12, 14 and 16 under 35 U.S.C. 103(a) as being unpatentable over Webb et al. as applied to claims 1, 17 and 31-32 above, and further in view of Pollard has been withdrawn in view of Applicants' remarks.

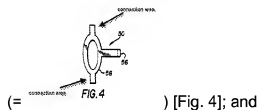
Response to Amendment

Claim Rejections - 35 USC § 102/103

Claims **1, 17 and 31** are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over **Gaddy** (US Patent No. 5,006,179).

Gaddy teaches a solar cell connector, comprising:

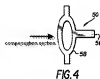
- (a) a metal strip **50** (= a second connecting part) [col. 5, line 64 to col. 6, line 21];
- (b) first and second connection areas formed in said metal strip, said connection areas comprising tabs for connection to respective solar cells



- (c) a centrally situated compensation section formed in said metal strip integrally with and intermediate said connection areas;

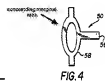
wherein,

- (i) the compensation section comprises a single central opening in said metal strip;
- (ii) said central opening is intermediate said first and second connection areas, and is delimited by a surrounding marginal area of said metal strip; and
- (iii) the compensation section and the central opening are one of round,



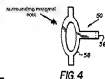
oval, and polygonal (= FIG. 4) [Fig. 4];

whereby said first and second connection areas and said compensation section



comprise a unitary continuous segment of said metal strip (= FIG. 4) [Fig. 4].

Wherein the marginal area of said metal strip is formed as a single monolithic



portion of said metal strip (= FIG. 4) [Fig. 4].

As to wherein the solar cell connector is produced by stamping, etching or eroding, as recited in claim 17, how the solar cell connector is produced does not structurally distinguish the solar cell connector from the prior art.

Claim Rejections - 35 USC § 103

I. Claims **12, 14 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gaddy** (US Patent No. 5,006,179) as applied to claims 1, 17 and 31 above, and further in view of **Pollard** (US Patent No. 6,034,322).

Gaddy is as applied above and incorporated herein.

The connector of Gaddy differs from the instant invention because Gaddy does

not disclose the following:

- a. Wherein the metal strip comprises a material selected from the group consisting of a precious metal and a conductive material with a precious-metal coating, as recited in claim 12.
- b. Wherein said precious metal is selected from the group consisting of gold and silver, as recited in claim 14.
- c. Wherein the conductive material comprises a material selected from the group consisting of i) molybdenum and ii) another element of the sixth subgroup of the periodic table of elements, as recited in claim 16.

Gaddy teaches by way of example and not limitation, the first and second connecting parts may be formed of either molybdenum, INVAR, or KOVAR, all of which exhibit a coefficient of thermal expansion substantially the same as the coefficient of thermal expansion of silicon (col. 6, lines 7-12).

Like Gaddy, Pollard teaches solar cell interconnects (col. 5, lines 42-58; and Figs. 6 and 7). Pollard teaches interconnects **26** for electrically joining circuitry on the cell **22** to an adjoining cell **28** are either pure silver or silver plated kovar, molybdenum or Invar. These latter materials provide a better thermal expansion match to the cell material. Silver is soft and compliant, not requiring a perfect match (col. 1, lines 37-42).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the metal strip described by Gaddy with (a) to (c) above because pure silver and silver plated kovar would have also provided a better

thermal expansion match to the cell material. Silver is soft and compliant, not requiring a perfect match as taught by Pollard (col. 1, lines 37-42).

As to wherein the conductive material comprises a material selected from the group consisting of i) molybdenum and ii) another element of the sixth subgroup of the periodic table of elements, it is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose. The idea of combining them flows logically from their having been individually taught by the prior art (MPEP § 2144.06).

II. Claim **32** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Gaddy** (US Patent No. 5,006,179) as applied to claims 1, 17 and 31 above.

Gaddy is as applied above and incorporated herein.

The connector of Gaddy differs from the instant invention because Gaddy does not disclose wherein said tabs project substantially normal to said marginal area of said metal strip, as recited in claim 32.

Gaddy teaches a tab **58** (= a distal end portion) projecting substantially normal to



said marginal area of said metal strip (=) [Fig. 3].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the connector described by Gaddy with wherein

said tabs project substantially normal to said marginal area of said metal strip because:

(i) The duplication of parts was held to have been obvious (MPEP § 2144.04(VI)(B)).

(ii) It has been held that changes in shape were a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular shape claimed was significant (MPEP § 2144.04(IV)(B)).

(iii) This is well within the skill of one having ordinary skill in the art dependent upon the intended use of the device, particularly to the environment to which the device will encounter, which would be most suited for the application of the device, absent evidence to the contrary.

III. Claims **1, 12, 14, 16-17 and 31-32** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Webb et al.** (US Patent No. 3,422,213) in combination with **Pollard** (US Patent No. 6,034,322) and **Gaddy** (US Patent No. 5,006,179).

Webb teaches a solar cell connector (= an electrically conductive connector strip) [col. 1, lines 13-21] comprising:

(a) a metal strip (= an elongated strip formed from beryllium-copper or other suitable metals, such as nickel, copper-tin-phosphorous, nickel-silver, and copper) [col. 3, line 53; and col. 4, lines 56-61];

(b) first **38** (= a first section) and second **40** (= a second section) connection areas formed in said metal strip, said connection areas comprising tabs for connection


to respective solar cells (= the connectors thus permit the coupling of a larger group of electrical devices such as solar cells) [col. 4, lines 62-67; and Fig. 2]; and

(c) a centrally situated compensation section **44** (= a stress relieved area) formed in said metal strip integrally with and intermediate said connection areas (= providing a connector of the flat strip type which includes a stress relieved area in the form of a plurality of integral strand-like portions) [col. 2, lines 26-47; and Fig. 2];


wherein,

(i) the compensation section comprises a single central opening in said metal strip (= the single central opening parted by the strands **48**, **50**, **52**, **54**, **56**, **58**) [Fig. 2]; and

(ii) said central opening is intermediate said first **38** and second **40** connection areas, and is delimited by a surrounding marginal area of said metal

strip (= ) [Fig. 2];

whereby said first **38** and second **40** connection areas and said compensation

section **44** comprise a unitary continuous segment of said metal strip (= ) [Fig. 2].

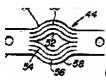
The solar cell connector is produced by stamping, etching or eroding (= by chemical milling) [col. 2, lines 31-35; col. 3, lines 6-9; and col. 4, lines 54-56].

The marginal area of said metal strip is formed as a single monolithic portion of

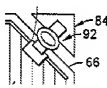
said metal strip (= ) [Fig. 2].


The connector of Webb differs from the instant invention because Webb does not disclose the following:

a. Wherein the compensation section and the central opening are one of round, oval, and polygonal, as recited in claim 1.

Webb teaches:  (Fig. 2).

Like Webb, Pollard (col. 5, lines 42-58; and Figs. 6 and 7) and Gaddy (col. 1, lines 8-11) teach solar cell interconnects.

Pollard teaches:  (Fig. 4A).

Gaddy teaches:  (Fig. 4).

An oval is:

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to have modified the compensation section and the central opening described by Webb with wherein the compensation section and the central opening are one of round, oval, and polygonal because structural relationships may provide the requisite motivation or suggestion to modify known structures to obtain new shapes.

Furthermore, it has been held that changes in shape were a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular shape claimed was significant (MPEP § 2144.04(IV)(B)).

b. Wherein the metal strip comprises a material selected from the group consisting of a precious metal and a conductive material with a precious-metal coating, as recited in claim 12.

c. Wherein said precious metal is selected from the group consisting of gold and silver, as recited in claim 14.

d. Wherein a conductive material comprises a material selected from the group consisting of i) molybdenum and ii) another element of the sixth subgroup of the periodic table of elements, as recited in claim 16.

Webb teaches that the connectors are formed from beryllium-copper, other suitable metals, such as nickel, copper-tin-phosphorous, nickel-silver, and copper may be employed (col. 4, lines 56-61).

Like Webb, Pollard teaches interconnect members for solar cells (col. 5, lines 42-58; and Figs. 6 and 7). Pollard teaches that interconnects **26** for electrically joining

circuitry on the cell **22** to an adjoining cell **28** are either pure silver or silver plated kovar, molybdenum or Invar. These latter materials provide a better thermal expansion match to the cell material. Silver is soft and compliant, not requiring a perfect match (col. 1, lines 37-42).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the metal strip described by Webb with (b) to (d) above because pure silver and silver plated kovar would have also provided a better thermal expansion match to the cell material. Silver is soft and compliant, not requiring a perfect match as taught by Pollard (col. 1, lines 37-42).

As to wherein the conductive material comprises a material selected from the group consisting of i) molybdenum and ii) another element of the sixth subgroup of the periodic table of elements, it is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose. The idea of combining them flows logically from their having been individually taught by the prior art (MPEP § 2144.06).

e. Wherein said tabs project substantially normal to said marginal area of said metal strip, as recited in claim 32.

Gaddy teaches a tab **58** (= a distal end portion) projecting substantially normal to



said marginal area of said metal strip (=) [Fig. 3].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the tabs described by Webb with wherein said tabs project substantially normal to said marginal area of said metal strip because:

(i) It has been held that changes in shape were a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular shape claimed was significant (MPEP § 2144.04(IV)(B)).

(ii) This is well within the skill of one having ordinary skill in the art dependent upon the intended use of the device, particularly to the environment to which the device will encounter, which would be most suited for the application of the device, absent evidence to the contrary.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EDNA WONG whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Edna Wong/
Primary Examiner
Art Unit 1795

EW
November 22, 2008